Richard Osborne, 'Vinyl, Vinyl Everywhere: The Analogue Record in the Digital World' in *The Routledge Companion to Media Technology and Obsolescence*

Vinyl records differ from other media technologies in this book. Their obsolescence was planned and was perhaps expected but it has not happened. Quite the opposite, in fact: there have been a number of vinyl revivals, the strongest of which is currently taking place. In the US, sales of vinyl albums and EPs declined from their peak of 341m units in 1978, to just 900,000 in 2006 (Hogan, 2014). The situation was similar in the UK. 1978 was the peak year, with trade deliveries of 86m albums; in 2007 only 205,000 vinyl albums were sold (Osborne, 2012, p. 1). The last decade has witnessed a transformation. In the US, sales of vinyl albums increased thirteen-fold between 2006 and 2015, when total sales reached 11.9m units (Nielsen, 2016). In Britain, 2.1m albums were sold in 2015, the highest figure for 21 years (BPI, 2016). This upward trend is expected to continue. Research and Markets have forecast an annual growth rate in worldwide vinyl sales of 55.15% between 2016 and 2020 (Houghton, 2016a).

This revival is not confined to a nostalgic, baby-boomer market. A US survey suggested that while a quarter of vinyl listeners fall into the 55+ age bracket, one third are aged 13-24 (Houghton, 2016b). Hipsters and alternative music fans are buying vinyl: the annual "Record Store Day," which celebrates vinyl and independent record shops, has done much to publicise the format's appeal. And yet the format is also mainstream. Britain's two leading supermarket chains, Tesco and Sainsbury's, have recently begun stocking vinyl albums. The biggest-selling vinyl album in 2015 was Adele's *25* (BPI, 2016). As this release indicates, new music is being manufactured on the format. New pressing plants

are also opening up. In the US, Independent Record Pressing, Cascade Record Pressing, Third Man Records and Disc Makers have each been established since 2014. Moreover, many of these vinyl records are actually being played. One factor that is often mentioned in reports on the revival is that some contemporary purchasers do not own record players; they instead buy "vinyl to own it as a piece of art "(Hall, 2006).[1] Nevertheless, while there is some evidence that this phenomenon is true, sales of turntables have increased considerably. For example, Amazon's top selling audio product for Christmas 2015 was the Jensen JTS-230 (Owsinski, 2016).

The fall and revival of vinyl have much to do with digital technologies. The analogue vinyl record was deliberately targeted by the digital compact disc (CD). Thomas Edison invented sound recording in 1877. Symbolically, the planned launch date of the CD was 1977, marking the end of a century of analogue records (Osborne, 2012, p. 82). The CD was successful too, achieving world sales of 200 billion by 2007 ("Compact Disc Hits 25th Birthday" 2007). CD sales are in decline, however. They were first troubled by digital downloads; now they are faced with digital streaming. In contrast, the vinyl record has been helped rather than hindered by these successor formats. Its analogue qualities provide a complement and an alternative to intangible digital files.

And yet the affection for vinyl goes deeper. Vinyl is a multi-faceted product with diverse appeal. Many of its aspects were fetishized *prior* to the arrival of digital formats. In order to analyze these facets we need to explore the origins of the vinyl disc and the ways it has been perceived. We also need to go back beyond vinyl itself. Many important features of the analogue record were in existence before vinyl was used for recorded manufacture. These include the

groove, the disc shape, the label, the b-side, and the sleeve. As such, this chapter will address analogue discs more broadly, looking in turn at the way they have reproduced, shaped, described, and molded sound. It will also address differing types of vinyl records. Vinyl has sub-formats, most notably the 7" single, the 12" single, and the long-playing (LP) record. These sub-formats have differing qualities and attract differing adherents. They have each played a role in vinyl's growth and survival.

How to Reproduce Sound

The ability to preserve and reproduce sound was a long-held human desire. There were early attempts, such as the statue of Memon at Thebes, built approximately 1490 BC, or the talking head designed by the English monk Roger Bacon in the Middle Ages. In addition, there were fictitious reveries. Charles Grivel noted that "The wish for phonography more or less fills literature, from Homer to Rebelais to Porta to Becher, to Grunderl and Nadar, to Cros and Villiers" (1992, p. 39). However, it was not until the late nineteenth century, when Edison developed his phonograph, that this dream was successfully realized.

The technology was surprisingly simple. Sounds were made into a recording horn; these sounds would vibrate a diaphragm; the diaphragm would in turn vibrate a stylus; the stylus would etch the sounds into a rotated recording medium. To reproduce the sounds, this order was reversed. At the heart of this process lay the groove. This is where the sounds were captured and where they could be witnessed. The responses to this sound writing – the "phono graph" – have been varied. The groove provided an initial source of wonder; it is the

reason why the record was considered to be outmoded; and it is one of the reasons why the record has survived. Key to its importance is the fact that it appeals to a number of senses: the groove can be seen, touched, and heard.

The legibility of the groove precedes its function as a sound carrier. The direct predecessor to Thomas Edison's phonograph - the phonautograph, invented by Edouard-Léon Scott de Martinville in 1856 - was concerned only with creating a script of sound. It was designed, Scott claimed, to capture the "natural stenography" of noise (Sterne, 2003, p. 45). Edison's machine went further: it replayed the noises themselves. Nevertheless, an interest in the text remained. In December 1877 the phonograph was displayed to the staff of the *Scientific American*, the first people outside Edison's circle of employees to encounter the machine. They reported, "there is no doubt that by practice, and the aid of a magnifier, it would be possible to read phonetically Mr. Edison's records of dots and dashes" ("The Talking Phonograph"). The groove fascinated because it was believed that its text could be decoded. Edison, for one, felt he could achieve this goal. He tested the quality of records by looking at them rather than hearing them (Israel, 1998, pp. 436-7). These tracings inspired poets and artists. Writing in 1919, Rainer Maria Rilke recalled that "what impressed itself" on his memory following his first encounter with the phonograph "was not the sound from the funnel but the markings traced on the cylinder" (pp. 51-2), while Làszlò Moholy-Nagy was so excited by this automatic writing that he wished to replicate it manually (1985, p. 289).

Although a full comprehension of records' grooves has remained tantalizingly out of reach, their general patterns can be understood. They change with fluctuations in tempo and fluctuations in tone. This is more apparent with

some sub-formats than others, however. The 78rpm shellac disc was the dominant recording format from the second decade of the 20th century until the 1940s. It had large grooves, which enabled these changes to be easily noted and accessed. Consequently, when the LP was introduced mid-century, its narrow microgroove was bemoaned:

> It is going to be much harder now, if one wants for any reason to go back to a certain bar, to find the right spot and lower the needle without damaging the grooves … It will be impossible to mark up discs for demonstration, school or lecture use and certain broadcasting purposes. And L.P. records are a blow to people who, like myself, think they have at last mastered the art of reading music (the circular variety). (L.S., 1950, p. 4)

It would be another quarter of a century before the larger groove returned, coming via the 12" single. This sub-format had the same diameter as an LP but contained less music. Consequently, its grooves were more widely spaced. The introduction of the 12" single in the mid-1970s prompted a revolution in the art of DJing. The pioneering hip-hop DJ Grandmaster Flash re-introduced the idea of marking records. His "Clock Theory" involved drawing lines on a disc like the hands of a timepiece. He could then spin the records back to these segments with split-second timing. Flash's protégé, Grand Wizard Theodore, introduced further skills. He could accurately drop a record player's needle at the beginning of a percussive break:

> You watch the grooves, the thickest grooves are where the break part comes in. When the record rolls around at a 360-degree angle, you can pretty much see where it starts. You say, "Here it comes." I made sure that

> I picked up the needle at a certain point. I watch the record go round and round, then bam! It comes right in. I did it so many times that I came to do the needle drop. I developed a technique, and I didn't know what I was doing. I got this down to a science. I used to astonish myself. (Fricke & Ahearn, 2002, p. 62)

He also invented the most famous of all hip-hop's DJing innovations: scratching (manually moving a record's groove back and forth at speed to alter its pitch and distort its sound). It was the specific requirements of hip-hop and dance music DJs – their need to see and touch the grooves of a 12″ single – that first ensured the continuation of vinyl in the digital world. As the sales of other sub-formats declined, sales of 12" singles remained healthy, thus keeping pressing plants in business (Davis, 1994, pp. 18–19).

The digital campaign against analogue discs was not centred on their ocular or tactile qualities. On the contrary, digital DJing equipment, such as Serato Scratch or Final Scratch, has sought to replicate the look and feel of vinyl records. Rather, it has been the audio quality of the groove that has been targeted. Shellac discs gained their best levels of reproduction when there was a close fit between needle and groove. Abrasives were added to the shellac mixture to help wear down the stylus, while the stylus itself would dig away at the groove. This battle resulted in close contact, but also fostered the distinctive "frying-bacon" sound of 78rpm records. Shellac was eventually replaced by tougher and more durable vinyl records, but with these came the microgroove: styli now had to negotiate the most delicate of tracings. This new material was also static-electric prone and therefore attracted increased amounts of dust.

The CD's solution of contact-free reproduction had long been mooted. In 1917 Gresham L. George had written:

> That the superman of 2000 A.D. will be content to receive his aural titillation through the medium of a steel needle and shellac plate is, to me, inconceivable. Long before that, magnetised strands and selenium cells will have been exploited. By electro magnetion, or currents controlled by light – with in neither case direct contact between record and reproducer – will that fortunate descendant of the present scratch-enduring, squeak-abiding generation seek beatitude. (p. 270)

The CD finally arrived in 1982. Philips and Sony, the co-developers of this format, focused their attacks on the fallibility of the vinyl groove. An early Sony advert pictured a vinyl record beside a CD and boasted, "no wow, no flutter, no wear, virtually immeasurable distortion, wide dynamic range and no surface noise" (Sony advert, 1982, pp. 6-7). Philips's advertising claimed similarly: "No record or stylus wear. No dust, static or vibration problems. No surface noise" (Philips advert, 1983, p. 9).

These campaigns were effective. Ten years after its launch, the CD was the leading sales format in the UK (Osborne, 2012, p. 82). However, as vinyl records began to be superseded by this digital carrier, something curious happened: their patina began to be appreciated. It was worn as a badge of honour; held up as something that was missing from CDs. One boast was that the layer of detritus provided proof that the listener had been there:

> [I]n a world where it often seems important to assert that you were in on some things right at the start … those blemishes – scratches, bits of old candle, staunched beer spillages – are a crucial historical index. Records

> left their mark on you, and, in the spirit of co-operation, you left your mark on records. What hope for this two-way relationship if CDs have the gift of eternal youth? (Smith, 1995, p. 182)

Another claim was that background noise engendered a superior auditory ability: "We listened harder in those [vinyl] days. Music was made doubly precious by the thicket of noise from which it had to be plucked" (Eisenberg, 2005, p. 212). For others, the patina was part of the musical experience. The increased surface noise of the raised run-in groove, occasioned by its distorted shape, provided an anticipatory frame for the sound recording. This was followed by the pleasure of the steady crackle when the music was underway. The appreciation of background noise became obvious when artists began to sample worn vinyl records, a practice that rose in direct proportion to the dominance of the CD.

There was a sense that the true character of the analogue format was to be found in its aging process. The artist Christian Marclay sought to highlight this phenomenon with his piece *Record without a Cover* (1985). This disc was issued sleeveless so that it could rapidly accumulate wear and tear. The recording itself consists of Marclay DJing with old and worn records, but also contains large expanses of "empty" grooves. As the record gets damaged it becomes difficult to tell which are its natural scratches and which come from other discs. For Marclay, the noise accumulated by records is as important as the noise incorporated in records:

> When a record skips or pops or we hear the surface noise, we try very hard to make an abstraction of it so it doesn't disrupt the musical flow. I try to make people aware of these imperfections, and accept them as

> music; the recording is a sort of illusion while the scratch on the record is more real. (Ferguson, 2003, p. 41)

The appeal of patina is wider than Marclay thinks, however. Many vinyl fans would echo Elvis Costello's sentiments in "45," his paean to the 7″ single. The singer praises "Every scratch, every click, every heartbeat, every breath that I bless."[2]

How to Shape Sound

Once the groove was in existence it needed to be formatted. There were a number of possible solutions: to house the recording information on a continuous strip (as with a tape spool); to spiral it around a cylinder; or to spiral it on a disc. The pioneers of sound recording focussed on the latter two options. Thomas Edison's early recordings were issued on cylinders. Emile Berliner, the inventor of the gramophone, chose to work with discs.

When it comes to sound quality, the cylinder is the superior choice. A standard rotation speed for a cylinder produces a standard surface speed for its groove. In contrast, when a disc turntable rotates at a regular speed, the analogue groove has to cover a greater distance at the outside of the record than it does at the centre. The faster the surface speed of the groove, the more space it has in which to hold recording information; the more space the recording information is given, the clearer its reproduction. Due to the lower surface speed at the centre of a disc there is a decrease in quality as the record progresses.

The disc shape has advantages of its own. Being a flat object, it is more convenient to store. It can also be read and handled more easily, thus facilitating the sensory qualities outlined in the section above. In addition, it is two-sided.

Doubling the surface area increases the amount of information that can be housed. It also enables the material on the two faces to be compared and contrasted. However, it was for reasons not inherent in the shapes of these formats that the disc eventually triumphed over the cylinder, becoming the leading format by the outbreak of World War I. Notably, the companies who manufactured discs hired celebrated artists, they had superior repertoire, and they marketed their recordings more effectively (Osborne, 2012, pp. 35-43).

Because the analogue disc had drawbacks there were continual attempts to improve upon it. At first this remodelling took place *within* the parameters of the analogue disc. There was a desire to find the optimum balance between sound quality, size, and duration. A record with a wider diameter would be able to contain more recording information. It would, however, be more cumbersome to store and would evidence a more pronounced decline in sound quality between its outer rim and its run-out groove. A faster revolution speed would alleviate some of the sound problems, but only at the expense of duration. Ultimately, the analogue disc format set time limits for music. In the early years of sound recording, discs ran for no more than two minutes. By the middle of the twentieth century, the majority of 10", 78rpm records were still restricted to a four-minute length. The 7", 45rpm discs introduced by RCA Victor in 1949 offered only a marginal increase upon this, running at a maximum duration of 5.3 minutes.

Attempts were made to create records of greater length, with the primary aim of housing longer pieces of classical repertoire. These items were generally ill conceived, overly expensive, or inappropriately marketed, however, and it was not until the introduction of Columbia's 33rpm, LP record in 1948, that some of

these issues were successfully addressed. Each side of an LP could contain up to 25 minutes of music, while the narrow "microgroove" that was developed for this format offered sound reproduction of a high standard. This groove was nevertheless susceptible to dust and it required delicate handling.

Hence, format developments took place *beyond* the confines of the analogue disc. The first alternative was tape spools. Reel-to-reel tape recording offered excellent sound quality, while the cassette tapes introduced by Philips in 1962 provided ease of handling. Both formats facilitated longer playing times than the analogue disc. Moreover, such was the success of the cassette tape that it eventually superseded vinyl records, becoming the leading sales format in Britain by 1985. Cassettes were nevertheless considered as a complement to vinyl records; they were not intended to replace them.

The same is not true of the CD, which was marketed as superseding vinyl records in all respects. CDs would be of longer duration, but of a smaller, more convenient size. They would be of excellent, sustained sound quality and they would be less prone to damage and wear. As we have seen and will see, however, each of the supposed defects of vinyl records has also been viewed in a positive light, time constraints included. Although the parameters of vinyl formats are restrictive, they have become embedded in musical practice. The short burst of the 45rpm disc has been idealized in the notion of the three-minute single. The 45-50 minute duration of the LP has also created a blueprint. Although the CD format increased the potential length of an album to 74 minutes, many artists continued to issue albums that lasted the timespan of an LP. These ideals provide one reason for the continued fetishization of vinyl records. If singles are still

being made to a three-minute formula and albums are set at three-quarters of an hour, it makes sense to consume them via the formats that set these limits.

There are further aspects of musical repertoire that are most aptly consumed via vinyl formats, as it was these formats that helped to shape them in the first place. For example, the two-faced nature of vinyl singles helped foster the idea that the track on the b-side should be of a different but complementary nature to the one on the a-side (Osborne, 2012, pp. 143-55). The b-side was sometimes of a different generic origin (as with Elvis Presley's Sun singles), it could have subterranean qualities (as with the wilder or more unguarded material that many artists have buried on their b's), or it could offer an inversion of the music on the other side (as with the dub sides of reggae singles or the remixes that evolved through dance music genres).

On a lager scale, artists have used the two sides of an LP record to create contrasts and continuities. Within rock music, Bob Dylan and the Beatles were pioneers of mirroring and inverting the two halves of an LP. Dylan's folk music apostasy is reversed on 1965's *Bringing It All Back Home* (which by a few months pre-dates his notorious Newport Festival appearance). On side one he goes electric; on side two there is just guitar and voice. Other rock artists, including David Bowie (*Low*), Joni Mitchell (*Court and Spark*) and the Beatles (*Abbey Road*), have produced albums with strongly contrasting sides, as have soul artists, such as the Isley Brothers, who commonly issued albums with up-tempo songs on one side and ballads on the other. The Beatles' *Sgt. Pepper's Lonely Hearts Club Band* is also dependent on the dual-sided nature of the LP. It is patterned like a theatrical production, beginning with an orchestra tuning up and concluding with an encore, and it is broken by an intermission between the two sides.

However, it is the "Sgt. Pepper" reprise that makes the whole concept hang together: bridging and dividing the two halves, it summarizes the record and marks out the distance the listener has travelled. This use of the reprise has been much imitated. Neil Young used it in combination with an acoustic/electric split, book-ending at least three of his albums with different versions of the same song. Pink Floyd was also fond of this device: "Shine on You Crazy Diamond" opens and closes *Wish You Were Here*; "Pigs on the Wing" performs the same task on *Animals*.

These devices have been carried over to later formats. Although one-sided, cassette singles and CD singles have both included b-side material. There was also, for a time, the idea of the download b-side (Osborne, 2012, p. 153). In addition, artists such as Julian Cope (*Citizen Cain'd*) and Kate Bush (*Aerial*) have issued albums of contrasting material as double-CD sets, even though the music would fit onto a single CD. The idea is to replicate the two-sided nature of the LP. Other artists have sought to digitally replicate the intermission of an LP record. At the halfway point of Beck's *Odelay* CD there is the sound of a needle being picked up from a record, followed by the sound of the needle being put down again. Similarly, halfway through the CD of Robert Wyatt's *Cuckooland* there is 30 seconds of silence, put there "for those with tired ears to pause and resume listening later" (Wyatt, 2003).

Later formats also sought to replicate the varied appearances of vinyl sub-formats. Cassette singles and CD singles were both packaged differently to their album counterparts, and some of the earliest CD singles were smaller in diameter than CD albums. These differences were never as marked as those between the various vinyl sub-formats, however. 7" singles, 12" singles, and LP

records have different sizes, speeds, and sleeve design styles. Each of these formats has different sound qualities as well. Although these sub-formats have been utilized by all musical genres, they have also been articulated for particular musical causes. The LP format was developed for classical music and henceforth was suited to music that had mature and serious aspirations (successively the earnest causes of jazz, folk and progressive rock were each honed on the LP record) (Osborne, 2012, pp. 94-115). The 7" single, meanwhile, has been variously associated with commercial music (because of its links with the charts and radio), with dance music (because of jukeboxes), and with DIY punk and indie music (because it is cheaper to self-produce a vinyl single than to record and manufacture an LP). Finally, the 12" single was developed by DJs and has remained the preserve of electronic dance music (it is louder, longer and has better bass frequencies than the 7" single, and its wider grooves can be accessed and manipulated more easily).

The differences between sub-formats have proved crucial for vinyl's continued success. Vinyl is the only sound carrier with sub-formats that sound and perform differently from one another, and it is vinyl that provides the most effective means of putting musical preferences on display. Moreover, it is the taste preferences of different musical tribes that have kept vinyl in continuous production. It was the demand for 12" dance music singles that ensured vinyl's survival during the fallow period of the 1990s. The early 2000s saw a rise of garage rock bands, such as the White Stripes and the Strokes. Their espousal of the immediate and speedy thrills offered by the 7" single saw an upturn in sales of this format. The more recent vinyl revival has been based on LP sales, as a mature market has emerged for classic rock releases.

How to Describe Sound

An analogue record has two main packaging features: the label and the sleeve. These devices have different emphases and provide one of the means by which sub-formats have been utilized to promote different types of music. They have also had an effect on the way that music is disseminated and perceived. They are required for a number of reasons. First, they make up for the fact that the groove cannot be read as text: the consumer requires further literature and imagery to describe the audio tracings. Second, they provide a means of marketing music. As they do so, new visual and tactile qualities are introduced to the consumption process. Third, these items make up for the design limitations of the disc. The label gains its position at the center of the analogue record because there is a point at which the groove's spiral can no longer accurately reproduce sound. The record cover is required because of the delicacy of the groove.

Faced with the void at the center of his gramophone discs, Emile Berliner turned this flaw into an advantage. He used the space to inscribe the title of each recording as well as details of patents he had been awarded. Eldridge Johnson, the first head of Victor Records, went further. In April 1900 he wrote to his British colleague William Barry Owen, "Strange to say, one of our greatest difficulties has been the proper marking of these records. We never tried before to mark them properly, as if we were making them to sell" (Edge & Petts, 1987, p. 201). His solution was the paper record label, first witnessed on his "Improved Gram-O-Phone Records." The name of his record company was placed prominently on the top half of the label; the specifics of the disc (the name of the song, the artist, and other recording information) were outlined in smaller print

and placed on the bottom half. This design standard has remained dominant throughout the history of analogue disc manufacture.

The clearest outcome of labelling lies in the fact that the term "record label" became a synonym for "record company." Recordings have become strongly identified with particular manufacturers. Victor Records, for example, were particularly keen that their company name and masthead would be associated with the finest repertoire and with particular artistes. This marketing ideology was adopted by other major companies in the early 20th century but became difficult to sustain as their rosters grew in size and they sought to cover the market for all forms of music. As a result, the larger companies used labels to divide their music along generic lines, utilizing a range of label colours and sequences of catalogue numbers to subdivide their repertoire. It was by these means that American record labels ghettoized "race" and "hillbilly" genres in the first half of the twentieth century (Osborne, 2012, pp. 50-61).

Labelling is also one of the more obvious means by which major companies can be distinguished from independent companies. This is beneficial for the latter, as some consumers identify positively with their business ethos. Independent companies can also find it easier to build a strong musical identity through labelling practices, retaining a close association with a particular type of music. Some label names, such as Motown or Blue Beat, have even become generic terms. In contrast, the music of major labels can be tainted by the presence of their company names, rendered "corporate" or "manufactured" because of their business ideologies. As a result, the majors have on occasion masked their involvement behind bogus independent label names (Osborne 2012, p. 66).

These practices have been important because the label has been prominent. Shellac records were sold in brown paper bags with cut-away centres, which allowed the record label to show through. It was only in the late 1940s, roughly coinciding with the arrival of the LP, that records began to be housed in picture sleeves and the label was hidden from immediate view. In Britain this luxury was not regularly afforded 45rpm singles until the 1970s. Before then vinyl singles took their design cues from shellac discs, being sold in paper bags with cut-away centres. The basic design for these bags was nearly always an extension of the record companies' logos. The dominance of the label name and iconography in this layout is one of the reasons why singles have been negatively considered more "commercial" than LP releases. Some practitioners nonetheless continue to see the virtues in this design. The cut-away layout can still be witnessed among 12" single releases, for example. Within dance music genres, the label name is often as important as that of the artist. Hence, this design scheme makes sense. This packaging method also highlights another icon of dance music scenes: the blank "white label" of promotional releases.

The record sleeve has opposite virtues. It downplays the label name and instead puts artists at the forefront. Pictorial designs were first regularly used for album sets of shellac records, grouping together discs that would make up a classical composition or a theatrical show. These sets were also the first items to receive sleevenotes, which were introduced by Herbert C. Ridout of Columbia Records in 1925 (Osborne 2012, p. 162). The first sleeve designer to achieve individual credit and recognition was Alex Steinweiss, art director for Columbia from 1939 to 1954. He persuaded company president Edward Wallerstein to allow him to illustrate the 1940 release *Smash Song Hits by Rodgers and Hart*. His

bold graphics and illustrations not only revolutionized sleeve design, they also transformed record sales. Six months after designing the Rodgers and Hart sleeve he repackaged a recording of Beethoven's *Symphony No. 9*, previously issued in plain grey cloth. Sales increased by 894 per cent (McKnight-Trontz & Steinweiss, 2000, pp. 31–2). Nevertheless, the biggest fillip for record sleeve design came with the introduction of the LP. This format offered a larger expanse for designers to explore. Additionally, because the music on this format was longer and more varied than that on shellac discs, it required cohesive illustration and elucidation.

There have been many trajectories within the history of sleeve design. One general factor, however, has been a movement away from scripture. Early LP sleeves were quite textural. The front covers would feature the names of the artists, the title of the album, the titles of some of the songs, the name of the record company, and possibly some boastful proclamations about the LP. The back covers would feature full track details, sleevenotes, and information about how to protect your records. In addition, they would sometimes advertise other products manufactured by the record company. However, when it was discovered that pictorial devices provided a better means of selling records, these texts began to diminish (Osborne, 2012, pp. 165-6). Most sleeves came to be dominated by pictures of the artists or by abstract imagery.

The sleeve is one of the main reasons for the continued popularity of vinyl records. In part, this is because some of the covers have achieved classic status. This can be attributed to the skills of particular designers (ranging from Reid Miles for Blue Note to Vaughan Oliver for 4AD); it can be because a particularly striking image has been employed (the prism of Pink Floyd's *Dark Side of the*

Moon; the radio pulses depicted for Joy Division's *Unknown Pleasures*); it can be because of the synchronicity between the music and the design (the psychedelic *Sgt. Pepper* sleeve; Jamie Reid's graphics for the Sex Pistols); it can even be because of a disjuncture between the cover and the text (the sleeve of Beach Boys' *Pet Sounds* looks increasingly dated while the music remains advanced).

What is also crucial is that vinyl sleeves have advantages over the packaging for other recording formats. In the first instance, they are bigger. The 12″×12″ frame has had sufficient impact to attract serious artists to its cause (Peter Blake, Richard Hamilton, and Andy Warhol all designed LP covers). Secondly, these sleeves can be made bigger still, folding out into gatefolds and posters if required. Thirdly, different shapes can be utilized (although square is the most common, there have been circular and hexagonal sleeves). Fourthly, these sleeves can accommodate other materials (inner sleeves, posters, singles, and various "free" gifts). Fifthly, they can be made of a range of materials. By the early 1970s, album sleeves had incorporated "linen, sand grain, calf, imitation leather and embossing" (Britt, 1971, p. 25). Finally, whereas cassette and CD sleeves are enclosed in plastic cases, LP sleeves are open to the elements. Although this renders them susceptible to damage, it also means that they encounter nostalgic ageing processes. There is a pleasure in the patina of an LP sleeve, just as there is pleasure in the patina of the groove.

How to Mold Sound

One curious factor about the vinyl record is how late vinyl enters the frame. The groove, the disc shape, the label, and the sleeve were all in existence before poly vinyl chloride (PVC) was used for record manufacture. This material was

introduced as a replacement for shellac, the substance that dominated record manufacture from the early 1900s to the middle of the twentieth century. Shellac's downfall was not due to its sound reproduction. Despite its "frying-bacon" sizzle, shellac was capable of withstanding continued audio improvement: by 1945 Arthur Haddy of Decca Records had developed "full-frequency range recording," which had the ability to cover almost the entire range of frequencies heard by the human ear. Instead, its problem was geographical. Shellac comes from secretions made by the female "lac" beetle. Its main sources are the Malay Peninsula and French Indochina. The Japanese occupied both territories during World War II, consequently for the West shellac was in short supply.

The Union Carbon and Carbide Company introduced PVC in the early 1930s. This substance was almost immediately employed in record production: the first vinyl discs were produced in this decade, housing transcription recordings of popular radio shows. The harder and finer material of vinyl allowed for closer groove spacing, thus providing the longer playing time that these discs required. Vinyl also produced less surface noise than shellac and gave a wider frequency response. At this time, however, it was more expensive to manufacture. Although the blockades of World War II helped to urge its commercial usage, it was only with the arrival of the LP record in 1948 that vinyl proved to be commercially viable. The LP's longer playing time justified its higher cost.

Nevertheless, this manufacturing material was not the most novel aspect of the LP record: by the time of the LP's introduction consumers had become used to discs of different substances, including celluloid and laminated discs.

More innovative was the microgroove system, which made increased playing time possible. Music journals and record industry literature originally distinguished LP and 45rpm vinyl records from 78rpm shellac discs by reference to their speeds, rather than by referring to the material from which they were made. Indeed, it was only following the introduction of these newer discs that shellac records began to be referred to as "78s." Correspondingly, it was only with the introduction of further formats – the tape cassette and the CD – that LPs and 45s were commonly referred to as "vinyl" albums and singles, instead of being distinguished by their disc speeds.

The point being stressed here is the lack of attention paid to the vinyl compound at the moment of its wider introduction. If anything, artists and record companies wanted the focus to be elsewhere. Concentration on the material aspects of the record could lead to accusations of plasticity (an attitude that can be witnessed in the Byrds' 1967 release "So You Want to be a Rock 'n' Roll Star," which refers to the singles-making process as "sell[ing] your soul to the company / who are waiting there to sell plastic ware").[3] The history of vinyl production is curious and contradictory, however. By the 1970s, record companies were drawing attention to vinyl's qualities. By the 1980s, this plastic product was being described in organic terms. In fact, vinyl began to be thought of quite differently from how it was viewed when it was the leading music format.

Vinyl became ostentatious because this helped to sell records. There had been a long tradition of using the groove or the recording material to create quirky or distinctive discs. As early as 1898, Emile Berliner was cutting records that featured two grooves on the same surface; the needle would then orily

choose which one of two piano solos would be heard. The picture disc was also an early innovation, first appearing in the 1920s and used mainly for children's or advertisement records. In the 1930s the first square-shaped "discs" were manufactured. Moreover, neither shellac or vinyl records are naturally black. As such, different colours have been used to demarcate prestige releases and different genres of music. RCA Victor's original 45rpm releases, for example, were coloured in this manner.

When these techniques were re-introduced in the 1970s they were applied more individualistically and were used for the record companies' core musical products. The first vinyl picture disc was Curved Air's *Air Conditioning* (1970); colour (or lack of) made a comeback with Faust's eponymous clear-vinyl LP (1972). Richard Myhill's "It Takes Two to Tango" (1978) claimed to be the world's first square-shaped single, while Alan Price's "Baby of Mine" (1979) was the first in the shape of a heart. During the punk and new wave era a rash of coloured vinyl records was released. The double groove also returned: in 1979 John Cooper Clarke issued "Splat" / "Twat," featuring parallel clean and rude versions of the same poem.

Vinyl also brought attention to itself because of its declining quality. For a period it seemed as if the substance would suffer the same fate as shellac: its demise occasioned by its geographical source. PVC is derived from petroleum, for which the record industry has largely been dependent on the Middle East. The oil embargo instigated in 1973 by OPEC countries led to an increase in prices and a shortage of supplies. Record companies responded to this situation by reducing the amount of pure vinyl that records contained. In addition, records became thinner, with the weight of both singles and albums being reduced by

about eight per cent. Despite consistent outcries from consumers and an increase in returned faulty goods, poor standards of vinyl production continued into the 1980s. It was against this background that the CD was developed and launched.

Vinyl enthusiasts responded to the introduction of the CD with an argument that has since become familiar. Despite the poor standards of vinyl then available, this substance was advocated as sounding "warm" and feeling "alive." In contrast the CD was accused of having an "alien clarity" (Loder, 1991, p. 94). A year after the launch of the compact disc, it was reported that hi-fi enthusiasts found the new format lacking in "emotion" (Burbeck, 1984: 10). By 1987 the Smiths' lead singer Morrissey was claiming, "Vinyl, when rubbed vigorously against human skin, is passionately all-consuming"; in contrast he claimed that "Aromatically the Compact Disc has a vacuous 'Shake 'n' Vac' stench about it" (Martin, 1987, p. 21).

The irony here is that it was the arrival of the CD that enabled the analogue disc to transform its image. It was only now that it could be elevated from assembly-line product towards something approaching an art object. Statistics helped. As the CD rose to dominance it superseded vinyl as the music industry's mass-produced product. Vinyl, in contrast, came to look like a cottage-industry good. It was market forces that enabled artists such as Neil Young to advocate vinyl over the CD. Young waited until the early 1990s before launching his attack on digital reproduction. He then argued, "With analogue records the moment used to be captured – complete with the flaws, but you could hear it: all the *nuances*. With digital what happened was they removed everything that

seemed like a flaw and all you have left is the *semblance* of sound' (Thompson, 2001, p. 205. Emphasis in original).

The repositioning of vinyl would not have been possible were there not art as well as industry in a record's manufacture. A vinyl record *is* nuanced, its emphases dependent on the cutting engineer's skill. In contrast to a digital reproduction, an analogue record usually operates at the limits of its reach: there is a desire to achieve maximum duration, volume, and depth of tone. Cutting engineers have to account for and compromise between each of these. Greater duration requires closer groove spacing, which results in lower volume. Ignoring this can result in over-cutting (this can contribute to the fuzzy "warmth" attributed to vinyl reproduction). Increased bass frequencies also require wider groove spacing; while excessively high frequencies can result in distortion and accelerated record wear. Engineers also have to accommodate for the decline in sound quality as the groove reaches the record's centre.

As studio technology improved in the 1960s and 1970s, the dynamic range of tape master recordings increased. Vinyl did not keep pace with this change, however. Discrepancy between the two contributed to the increased number of faulty records in the early 1970s. Normally the dynamic range of the original studio recording has had to be compressed in order achieve a successful transfer to vinyl. Again this requires the skill of the recording engineer. Vinyl's warm analogue glow is also the result of compression. What is fortuitous, according to remastering engineer Bill Inglot, is that vinyl "kind of mushes things just right" (Milano, 2003, p. 43). Another engineer, Martin Giles, believes that the aural limitations of vinyl have helped to ensure its survival. He argues: "They talk about digital music sounding harsh or tinny or brittle in comparison and it is

because you can't get away with that kind of top-end on vinyl, and you have to find other ways to cut it … In a way, vinyl won't let you get away with cutting unmusical stuff" (Woods, 2003, p. 15).

The CD had another effect on vinyl production: quality improved. In 1984 the Linn record label was set up with the idea of "making very high quality vinyl records to compete with CD" ("Linn Set", 1984, p. 3). Thirteen years later *Music Week* was reporting that "The high quality associated with CD has inevitably meant that vinyl customers expect perfect replication"; the journal added, "Far from finding itself a casualty of the CD age, vinyl mastering has risen to the challenge" (Faux, 1997, p. 35). Record companies also began to use more vinyl. Towards the end of the 1990s, LP releases began to proudly advertise the fact that they were being issued on 180-gramme vinyl as opposed to the 130-gramme records that had previously become common. The manufacturers of these thicker discs reported a "surge in orders" (Tesco, 1999, p. 23). These records also boasted that they were "virgin vinyl pressings" and used "heavy quality" sleeves. Vinyl was no longer plastic ware; it was sold by the gramme as though it were fine food, and marketed as "luxury" issues in the manner of collectable art.

Digital downloading and digital screaming have brought another transformation. Increasingly it has been vinyl, rather than the CD, that is held up as the physical product with which to counter the computer's free-flowing zeroes-and-ones. As a result, the artistry of music and the artistry of manufacture have become thoroughly confused. By 2005 Malcolm Swindell, music account manager at AGI Media, could claim without irony that "The use of special packaging reminds people why they got into music in the first place" (Webb,

2005, p. 16). Similarly, Gordon Gibson of Action Records, speaking in 2007, could comment: "In every new batch of students there always seems to be a few that are actually into the music," pointing out that these are the people who are buying 7″ singles: "They seem to be in it for the artwork – that's the main attraction nowadays" (Poole & Giacomantonio, 2007). Thus we have reached the strange situation whereby "real" fans - those who are most passionate about music - are proving this point by investing in pressing and packaging. The twenty-first century has witnessed the advances of free music and the exorbitant vinyl release.

Conclusion

Looked at from one perspective the vinyl revival could seem precarious. Vinyl is susceptible to changing tastes in music. Its current popularity is in part underpinned by the large market that exists for "classic" rock music. This market might not always exist and its consumers are certainly getting older. In addition, vinyl is a hipster's choice and is being bought in reaction to prevailing trends. It marks the purchaser as someone who is resisting digital dominance and wants a return to a slower, more tangible world. What happens if these trends change? And what happens if vinyl becomes so popular that it is no longer an alternative product? There are already signs of a backlash. As Record Store Day has become increasingly successful, long-term adherents have criticized its appeal to the "wanton masses" and its takeover by major labels (Hebblethwaite, 2014).

However, the vinyl record is multi-faceted and so its revival. As I have outlined above, its sub-formats appeal to different musical scenes. Vinyl's regenerating ability is evidenced by the fact that its afterlife is now longer than

its term as the leading sales format. In Britain, vinyl was at the summit for 27 years: it overtook shellac records in 1958 and was overtaken by the cassette in 1985. The year 2017 marks 32 years since the format was eclipsed. Within this period there have been a number of different revivals – the 12" single in the late 1990s, the 7" single in the mid-noughties, the LP in the current decade - furthered by different musical trends.

It is also important to note that the appeal of vinyl does not reside solely in its analogue obstinacy. It is true that some aspects of vinyl appreciation only came to the forefront after the introduction of digital formats. It was in response to the introduction of the CD, for example, that consumers began to talk with wonder about scratches and dust. It was this "alien" format that made vinyl seem warm. The advocacy of vinyl is not wholly reliant on digital dialectics, however. You can peel back its layers and witness a longer-lasting appeal. For example, here is Colin MacInnes, writing about purchasing records in the 1950s: "The disc shops with those lovely sleeves set in their windows, the most original thing to come out in our lifetime" (1980, p. 65). And here is Stuart Maconie, talking about his early encounter with records:

> The first objects that I can recall being imbued with anything approaching mystery and beauty, objects that I coveted with what clearly bordered on the fetishistic, were the vinyl records in the darkened, reverential space inside my nana's radiogram. [...] I remember almost every one; its look, its label design, even its smell. (2003, pp. 13, 14).

Here is Twiggy, with a 1950's take on a supposedly modern phenomenon:

> My sister saved up all her pocket money and one day she came home and she had the record of "Diana" by Paul Anka. This is the first record that I'd

> actually ever seen in real life. It was very exciting. I remember sitting round our tea table and we all handed it round to each other and talked about it, because we actually didn't have a record player, so we couldn't play it. We could only touch it and look at it, but we all thought that that was fantastic. It didn't seem a weird thing to do. ("The People's History", 2016)

Finally, here is Rainer Maria Rilke, talking about the arrival of sound recording in the late 19th century: "what impressed itself on my memory most deeply was not the sound from the funnel but the markings traced on the cylinder; these made a most definite impression" (1954, pp. 51-2).

Vinyl has outlasted cassettes; its sales are going upwards while those of the CD are in decline; and it has recently surpassed digital downloads in terms of sales income (Moore 2016). At this rate it looks set to outlast digital streams. When it comes to recording formats, the story of obsolescence lies elsewhere.

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[1] See also Green 2006; Bray 2008; Plummer 2009; Bignell 2011.
[2] Elvis Costello, "45," written by MacManus. BMG Music, 2002.
[3] The Byrds, "So You Want to be a Rock 'n' Roll Star," written by McGuinn & Hillman. Tro Essex Music, 1967.